

4 RESPONSES TO PUBLIC COMMENTS

Response 1-1

See the response of Mr. Crandall following the comment.

Response 1-2

See the response of Mr. Scott following the comment.

Responses 1-3 and 1-4

Phase II characterization studies were conducted throughout the NIF Construction Area, one of the stipulated areas. The NIF Construction Area includes both the excavations for the NIF foundations and basement and the areas of surrounding land. DOE performed geophysical investigations and soil testing adjacent to the NIF excavation but not within the excavation itself. At the time of the Phase II characterization studies, basement foundations and buildings were already placed within the excavations. Nevertheless, further buried objects or materials were not expected within these excavations for the following reason. In the excavation, soils had already been removed to below the level where waste burial could have occurred. Buried wastes are expected to be within 1 to 3 meters of the surface. The NIF excavation is much deeper than that (greater than 10 meters), reaching soils that have been buried since prehistoric times. These levels include depths where mammoth and other fossils were discovered. Remains from waste disposal activities in the mid-20th century are not expected to be buried at such depths.

Responses 1-5 and 1-6

This document has been prepared according to the requirements of NEPA. See Mr. Ferguson's responses following the comments. Also, see General Issue 6 in Section 2 of this volume (Volume II of the SEIS).

Response 1-7

See the responses of Mr. Crandall and Mr. Ferguson following the comment. Also, see paragraph 2 of General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

Response 1-8

See the response of Mr. Crandall following the comment. Decommissioning of NIF was addressed in Section I.4.1.2.8.2 of Appendix I of the SSM PEIS, the NIF Project-Specific Analysis.

Responses 1-9 to 1-12

See paragraph 1 of General Issue 12 in Section 2 of this volume (Volume II of the SEIS).

Response 1-13 to 1-15

See the responses of Mr. Crandall following the comments. Appendix I of the SSM PEIS based its estimates of operations employment on the total number of workers. Baseline employment at LLNL was expected to either remain stable or slightly decline. Attrition of workers would occur through retirement and any phasing out of programs no longer supported by DOE. It was assumed that some or all of the attrition due to programs closing would be negated through growth of other programs or reassignment of workers. Because operation of NIF would increase the number of workers over that baseline, it was assumed that NIF workers would either have to be new hires or transfers from other programs that might then need to hire new workers. If NIF were not operated, these new jobs would not be needed.

Response 1-16

See Mr. Crandall's response following the comment.

Response 1-17

See Mr. Scott's and Mr. Crandall's response following the comment.

Response 1-18

See General Issue 6 in Section 2 of this volume (Volume II of the SEIS).

Response 1-19

See General Issue 7 in Section 2 of this volume (Volume II of the SEIS) regarding the revised and added alternatives. A new alternative of abandonment has been evaluated (commenters called this "true no action"); however, this alternative was considered unreasonable and eliminated from detailed study (Section 2.3.1 of Volume I). Section 4.3 in Volume I of the SEIS describes the impacts of implementing the other revised alternatives. Ceasing construction, whether the facility is mothballed, converted to another purpose, or demolished, will have environmental impacts in addition to those that have already occurred to date. In addition, it may have impacts over and above what would be expected if construction were to proceed as planned. The comparison of alternatives has been revised to present this concept more clearly. There is no commitment on DOE's part to demolish the NIF facility after its operational life. The alternatives at decommissioning would be much like the alternatives if NIF construction were stopped.

Responses 1-20 and 1-21

See General Issue 5 in Section 2 of this volume (Volume II of the SEIS). In accordance with the court's Memorandum Opinion and Order filed on August 19, 1998, in *NRDC v. Richardson*, DOE, no later than January 1, 2004, will either (1) determine that experiments using plutonium, uranium (other than depleted uranium), lithium hydride, and certain other materials will not be conducted in the NIF or (2) prepare a Supplemental SSM PEIS analyzing the reasonably foreseeable environmental impact of such experiments

Response 1-22

DOE did not preclude action alternatives from the SEIS. The alternatives for the SEIS would have included modifying the manner in which NIF would be constructed and operated, in view of the potential for treating more buried material. However, since no material was found, such alternatives were judged not to be reasonable.

Response 1-23

Comment noted.

Response 1-24

Your opinions regarding the scope of the SEIS are noted. See General Issues 3 and 4 in Section 2 of this volume (Volume II of the SEIS).

Response 1-25

See General Issue 7 in Section 2 of this volume (Volume II of the SEIS). "Mothballing" (placing the facility in storage) has been added to the new "Cease Construction" alternative in the Final SEIS (Section 4.3 of Volume I).

Response 1-26

See General Issues 11 and 12 in Section 2 of this volume (Volume II of the SEIS). The characterization studies conducted during Phase I and Phase II were designed to identify any unknown buried objects or waste sites. The sampling was not designed to identify small isolated areas or points of residual contamination. The interviews with workers, soil sampling, and geophysical surveys identified no new areas of potential contamination other than those already known. The East Traffic Circle Area was not sampled during Phase I and Phase II activities because the site was already known to be an old waste disposal site. Wastes already had been removed and the site cleaned up. However, prior to beginning new work in the ETC (unrelated to NIF), samples were taken to confirm its clean condition. The results indicated that small isolated areas of PCB contamination remained. A further cleanup action was then initiated. Sampling for residual contamination is part of the planning for LLNL site actions in areas with a past history of contamination.

Phase I of the characterization studies did not rely solely on site records but looked for other evidence of buried objects or waste disposal that might have been overlooked earlier. This evidence included interviews with retired site workers who indicated they knew where burial activities had occurred. In addition, aerial and other site photographs were examined for evidence of disturbed areas or surface features indicating burial sites. See also General Issue 11 in Volume II of this SEIS for a description of geophysical surveys and groundwater monitoring.

Response 1-27

Appendix I of the SSM PEIS based its estimates of operations employment on the total number of workers. Baseline employment at LLNL was expected to either remain stable or slightly decline. Attrition of workers would occur through retirement and any phasing out of programs no longer supported by DOE. It was assumed that some or all of the attrition due to programs closing would be negated through growth of other programs or reassignment of workers. Because operation of NIF would increase the number of workers over that baseline, it was assumed that NIF workers would either be new hires or transfers from other programs that might then need to hire new workers. If NIF were not operated, these new jobs would not be needed. If NIF were completed for another purpose, the effort needed to complete the facility might be similar to construction employment needed to complete NIF for its proposed purpose. If NIF were to be demolished and if demolition debris were to be disposed of off site, such an action might take longer and result in more hours worked than if NIF construction were completed. Because use of NIF by another program, completing NIF for another purpose, or demolishing NIF are options not found in any existing LLNL program plan, the employment aspects of these options are speculative and without supporting data. The discussion in Section 4.3 of the Final SEIS of the impacts on employment of ceasing construction has been revised to more clearly reflect this condition.

Response 1-28

Expected worker injuries are calculated on the basis of injury rates and the number of hours worked. Demolition of structures already completed at the NIF site and filling in the excavation would most likely result in additional hours worked beyond those required to complete the NIF buildings. (NIF buildings are more than 94% complete.) The conclusion that more workers would be injured in demolition activities than if the NIF facility were completed is a reasonable statement of potential impact. This is because less work remains to complete the facility than would be required to demolish the facility. Demolition would involve the construction trades. Other impacts of decommissioning and demolition of NIF are addressed in Section I.4.1.2.8.2 of Appendix I of the SSM PEIS.

The commenter states that demolition of NIF now would be safer than demolition after the end of operational life because there is now no radiological contamination of NIF. DOE does not expect that workers would be injured by radiation during demolition activities. DOE performs all such works under the requirements of DOE regulations and guidelines that ensure that radiological injury to workers will not occur. Doses to all DOE radiological workers are monitored to ensure that the doses are very low.

Response 1-29

The discussion of potential impacts to white-tailed kites from ceasing NIF construction has been revised to clarify this issue. The NIF portion of the SSM PEIS discussed the potential impacts of construction on nesting white-tailed kites, and mitigation measures were developed in consultation with appropriate regulatory authorities. During NIF construction activities to date, no impacts on white-tailed kite nesting success have been observed. The population appears to be doing well, and nest numbers have actually increased. With completion of NIF construction, potential disturbance of nesting activity by construction activity will cease.

Demolishing NIF would involve the same activities that potentially affect white-tailed kites from construction. If NIF were to be demolished, traffic from demolition workers and heavy equipment would continue for a longer period of time, increasing the period of time that the kite nests are at risk from disturbance. However, since mitigation and protection measures seem to have worked so far, it is likely that any impacts to kites from demolition activities would be minor. Further, if demolition were to be selected, it is likely that additional consultation would be required, which could lead to certain measures being imposed, such as prohibition of blasting during the nesting season or within a certain distance from the nest.

Response 1-30

See General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

Response 1-31

The analysis in this SEIS and in the SSM PEIS indicates that the NIF will not make environmental problems at LLNL worse. The discovery of buried PCB-containing capacitors was a direct result of NIF construction, and cleanup has removed a source of potential site contamination. Neither the SSM PEIS nor the SEIS identified any factors of NIF operations that worsen site contamination or result in health risks to the public or workers. See also General Issue 1 in Section 2 of this volume (Volume II of the SEIS).

Responses 1-32

Your opposition to NIF on the basis of cost is noted. See also General Issues 2 and 12 in Section 2 of this volume (Volume II of the SEIS). See General Issue 5 in Section 2 of this volume (Volume II of the SEIS) regarding the initial phases of operations. DOE remains committed to the design and operation of NIF that have remained essentially unchanged since preparation of the SSM PEIS. See General Issue 9 in Section 2 of this volume (Volume II of the SEIS) regarding nuclear weapons and nonproliferation.

Response 1-33

See General Issues 2, 5, and 9 in Section 2 of this volume (Volume II of the SEIS).

Response 1-34

See General Issue 1 in Section 2 of this volume (Volume II of the SEIS) and see Response 1-32.

Response 1-35

See Mr. Crandall's response following the comments.

Response 1-36

See the response of Mr. Crandall following the comment.

Response 2-1

Your comment that the NIF is too expensive to justify its existence is noted. See General Issue 2 in Section 2 of this volume (Volume II of the SEIS) regarding nonenvironmental issues related to NIF and General Issue 8 regarding the purpose and need for NIF.

The NIF Project-Specific Analysis in the SSM PEIS (Appendix I, Section I.4.1.2.3) concluded that the NIF would not result in further contamination of either soils or groundwater. The radioactive wastes generated by NIF would be disposed of at the Nevada Test Site, not at LLNL.

Response 2-2

The NIF would use the energy of laser light to create a fusion reaction in small quantities of deuterium and tritium (a radioactive isotope). The energy produced by this reaction would be confined to the reaction vessel; no explosion would result. These experiments will produce low-level and mixed wastes that would be disposed of at the Nevada Test Site in Nevada. Waste management for NIF is discussed in Section I.4.1.2.8 of Appendix I of the SSM PEIS. See General Issue 9 in Section 2 of this volume (Volume II of the SEIS) regarding nuclear weapons and nonproliferation. Your comment on the cost of NIF is noted.

Response 2-3

See General Issue 2 in Section 2 of this volume (Volume II of the SEIS).

Response 2-4

Comments on cost are noted. The NIF facility is the foundation of science-based stockpile stewardship.

Response 2-5

In accordance with the court's Memorandum Opinion and Order filed on August 19, 1998, in *NRDC v. Richardson*, DOE, no later than January 1, 2004, will either (1) determine that experiments using plutonium, uranium (other than depleted uranium), lithium hydride, and certain other materials will not be conducted in the NIF or (2) prepare a Supplemental SSM PEIS analyzing the reasonably foreseeable environmental impact of such experiments. See General Issue 5 in this volume (Volume II of the SEIS).

Response 2-6

The SSM PEIS describes waste management for NIF (Section I.4.1.1.8). NIF would not release contaminants to soils or groundwater. The trend of declining contamination is expected to continue during NIF operations. This SEIS concludes that it is unlikely that there is significant contamination in the areas of NIF construction that could result in significant effects on human health or the environment.

Response 2-7

See General Issue 2 in Section 2 of this volume (Volume II of the SEIS) regarding nuclear weapons and nonproliferation aspects of NIF.

Response 3-1

While the use of lithium hydride has been discussed by some scientists, there are no plans for that application at NIF. See General Issue 5 in Section 2 of this volume (Volume II of the SEIS) regarding materials and energy levels.

Response 3-2

See Mr. Crandall's response following the comment. See the third paragraph of General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

Responses 3-3 and 3-4

See the third paragraph of General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

Response 3-5

See the response of Mr. Brown following the comment.

Response 3-6

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS) regarding breadth of scope of the SEIS and Mr. Ferguson's response following the comment.

Response 3-7

See the response of Mr. Crandall following the comment.

Response 3-8

See the response of Mr. Crandall following the comment. A copy of the document has been sent to Ms. Cabasso.

Response 3-9

See General Issues 4 and 5 in Section 2 of this volume (Volume II of the SEIS).

Response 3-10

See Mr. Crandall's response following the comment.

Responses 3-11

See Mr. Crandall's responses following Comments 3-11 and 3-12 and Mr. Ferguson's response following Comment 3-11.

Responses 3-12

See Mr. Crandall's response following the comment.

Response 3-13

Comment noted.

Response 3-14

Under CEQ and DOE NEPA implementing regulations, a scoping meeting is not required for a Supplemental EIS. However, opportunity to comment on scope was provided by publication of the NOI. Since the scope for this SEIS was determined by the issues raised in the JSO, DOE decided not to hold a scoping meeting for this SEIS. The purpose of this SEIS is to evaluate whether, based on the new information and circumstances involving recently discovered buried objects containing PCBs, continued construction and operation would present significant effects on the human environment as a result of buried hazardous or radioactive materials in the stipulated areas. The SEIS also has the objective of specifying mitigation of any impacts identified in the analysis.

Other issues raised by commenters and related to operations of the NIF are outside the scope of this SEIS. See General Issue 2 in Section 2 of this volume (Volume II of the SEIS).

Response 3-15

The NIF Project-Specific Analysis in the SSM PEIS evaluated the upper bounds of NIF operations that could be expected to have the greatest impact on the human environment (Section I.3.2.2). Lesser degrees of operations were expected during the early phases of operations as the facility was brought to full power. See General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

Response 3-16

See General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

In accordance with the court's Memorandum Opinion and Order filed on August 19, 1998, in *NRDC v. Richardson*, DOE, no later than January 1, 2004, will either (1) determine that experiments using plutonium, uranium (other than depleted uranium), lithium hydride, and certain other materials will not be conducted in the NIF or (2) prepare a Supplemental SSM PEIS analyzing the reasonably foreseeable environmental impact of such experiments

Response 3-17

The possible changes identified by the commenter have not changed the purpose and need for NIF described in the SSM PEIS and incorporated by reference in the SEIS.

Response 3-18

DOE believes that it has presented a clear statement of purpose and need for NIF. The purpose and need for NIF have not been changed by the new circumstances and information that are evaluated in the SEIS. The purpose and need for NIF are described in the SSM PEIS and incorporated by reference in the SEIS.

Response 3-19

A Record of Decision was published in the *Federal Register* on December 26, 1996, in which DOE announced a decision to proceed with construction and operation of NIF. Groundbreaking occurred on May 29, 1997, and construction is ongoing. If DOE were to take no further action as a result of the SEIS, construction would continue to completion, expected in 2003. The purpose of this SEIS is to evaluate whether the newly discovered buried objects and wastes and other potential site contamination in the stipulated areas would result in any additional environmental impacts that were not addressed in the SSM PEIS and that would cause DOE to reevaluate the ROD. See General Issues 5 and 7 in Section 2 of this volume (Volume II of the SEIS).

Response 3-20

See General Issue 7 in Section 2 of this volume (Volume II of the SEIS). Because the NIF was designed to be used for activities involving radionuclides, it is reasonable to conclude

that reuse of the facility might also involve radionuclides. Certainly, LLNL's mission involves other programs involving radionuclides. A nonradiological use might also be found, and this is reflected in the revised description of this alternative.

Response 3-21

The commenter is correct that the number of employees for each of the alternatives involving ceasing NIF construction would depend on the nature of the action and could be less than, the same as, or more than the number that would be employed at NIF. The description of alternatives in the SEIS has been revised accordingly.

Response 3-22

Early operations at the LLNL site released organic contaminants, including Freon and trichloroethylene (TCE), which contaminated groundwater. LLNL has been remediating such groundwater contamination by pumping and treating contaminated water. Freon contamination is thought to have originated from an accidental release near Building 490. Unlike much older facilities, the NIF facility is designed in a way to prevent Freon and other organic chemicals from being released to soils where they could contaminate groundwater. The NIF portion of the SSM PEIS (Appendix I) acknowledges that the NIF would not release any Freon 11 or TCE to soils or groundwater. In addition, disposal practices for organic chemicals have changed in a way to prevent groundwater contamination. These chemicals are either recycled or sent off site for appropriate disposal at commercial facilities.

Response 3-23

DOE believes that the amount of shattered optics would be small and that there would not be a substantial increase in changeout of optics beyond that assumed in the NIF analysis in the SSM PEIS. The operations of NIF described in the SSM PEIS included maintenance of equipment and cleaning in areas including the area of the target chamber. Replacement of parts as needed for the various experimental campaigns and as a result of wear is expected. The NIF facility has been designed so that components of the laser and target experimental systems can be changed out as needed. This activity would be routine and would not require workers to be exposed to levels of radiation, activation products, or hazardous materials at levels that would present an unacceptable health risk. Exposure of workers would be limited by DOE and Occupational Safety and Health Administration (OSHA) regulations and guidelines. When maintenance activities would be performed near the target chamber, the NIF would be shut down, and neutron flux would not occur. Wastes from equipment changeout and cleaning were included in Tables I-4.1.2.8.1-2 and 3 of the SSM PEIS, and these estimates envelope variations in operations such as changes in maintenance schedules.

Response 3-24

Your request for documents has been noted. They will be provided as they become available to the public.

Response 3-25

See General Issue 4 in Volume II of this SEIS.

Response 3-26

Per 40 CFR Part 1500.2 and 1500.3 of the CEQ NEPA regulations, the National Environmental Policy Act of 1969 requires that a federal agency, with or without a contractor, prepare the EIS. The responsible federal agency for this SEIS is the U.S. Department of Energy. NEPA has no requirements for the impact analysis to be made by a separate, independent group. In the case of this SEIS, the Oakland Operations has hired a contractor who has no stake in the outcome of the SEIS to assist in EIS preparation and assess the environmental consequences of the action. A Conflict of Interest Disclosure is included in Section 6. DOE is required by law to be responsible for the content of the SEIS.

Response 3-27

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 3-28

The discovery of the buried capacitors at the NIF site was a surprise; they were encountered during construction activities. Their presence was not known when the SSM PEIS was prepared. In response to finding the capacitors, DOE immediately began removal and cleanup activities.

DOE and its stakeholders do not always agree on the course of action to be taken with regard to actions at LLNL. One way to resolve these issues is through litigation. The court case that followed the capacitor discovery set the bounds of subsequent reanalysis of the potential for further contamination in the NIF construction area and other nearby areas. DOE has published the results of these surveys in a series of reports that was made available to the public. The preparation of this SEIS has proceeded in accordance with requirements and guidelines for public participation in DOE regulations and Orders.

DOE continues to develop the experimental program for the NIF, which includes hypothetical options for how NIF could be operated. See General Issue 5 in Section 2 of this volume (Volume II of the SEIS) regarding these hypothetical options. During development of the experimental program, as well as during early R&D on components of NIF, a number of technical issues that need to be addressed were identified. This identification of issues is typical of any large R&D program. These issues are being solved as they surface, and DOE has not lowered its expectations for the NIF. DOE remains committed to the design and operation of NIF that has remained essentially unchanged since preparation of the SSM PEIS.

DOE is working to resolve issues related to the cost of the NIF program. These may include operation for some period of time at reduced power. See General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

See Mr. Crandall's defense of DOE's credibility following the comment.

Response 3-29

The NIF would provide basic physical data on conditions similar to those that occur in nuclear weapons. These data are needed for simulating the behavior of nuclear weapons and understanding how they work. The NIF data will let the weapons program evaluate the reliability and behavior of nuclear weapons without having to test them underground. DOE realizes that some of these data obtained during the experiments may be useful in evaluating nuclear weapons design, but design of new weapons is not a necessary part of justification for the NIF. See further discussion below in Response 3-30. See General Issue 8 in Section 2 of this volume (Volume II of the SEIS) regarding the purpose and need for NIF.

Response 3-30

The NIF would be an experimental facility. Design of nuclear weapons occurs elsewhere in the DOE complex. Experiments at NIF will provide information for computer models that describe the physics of the reactions in nuclear weapons. These models are necessary for stewardship of the nuclear weapons stockpile. See General Issue 8 in Section 2 of this volume (Volume II of the SEIS) for information on the purpose and need for NIF. The environmental risks associated with operating NIF have been evaluated against that purpose as part of the SSM PEIS Record of Decision.

See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 3-31

See General Issue 7 in Section 2 of this volume (Volume II of the SEIS). On the basis of an environmental analysis and other factors, DOE will choose one of the proposed alternatives and describe the selection in a ROD. The ROD will take into consideration other factors such as cost, nontechnical issues, engineering design issues, and national security. The SEIS evaluates certain environmental impacts of continuing to construct and operating the NIF, which will be only one element of the decision.

Response 3-32

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 3-33

See General Issues 8, 9 and 10 in Section 2 of this volume (Volume II of the SEIS).

Response 3-34

See General Issue 10 in Section 2 of this volume (Volume II of the SEIS).

Responses 3-35 and 3-36

See General Issue 9 in Section 2 of this volume (Volume II of the SEIS). On the basis of an environmental analysis and other factors, DOE will choose one of the proposed alternatives and describe the selection in a Record of Decision. The ROD will take into consideration other factors such as cost, nontechnical issues, engineering design issues, and national security. The SEIS evaluates certain environmental impacts of continuing to construct and operating the NIF, which will be only one element of the decision.

Response 3-37

See General Issue 8 in Section 2 of this volume (Volume II of the SEIS).

Response 3-38

Comment noted.

Response 3-39

Comment noted.

Response 3-40

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 3-41

DOE is committed to management of the LLNL site to protect human health and the environment from past, present, and future activities. DOE has implemented site remediation efforts to reduce site contamination due to historical operations. DOE published the results of these activities in various publicly available documents. These studies assess risk to the public and workers, and DOE has found these risks to be low. These activities are performed in accordance with federal and state regulations that specify how remediation activities are to be accomplished and how risks to the public are to be assessed. These studies present an accurate representation of the information available on LLNL site conditions. The characterization studies performed in Phase I and Phase II activities also have been accurately reported in the quarterly reports. The results of these studies were the basis of the SEIS conclusion that the potential impacts to human health and the environment from buried objects or materials in the stipulated areas from continued NIF construction and operations are low.

Response 3-42

See General Issue 10 in Section 2 of this volume (Volume II of the SEIS).

Response 3-43

Issues related to status, schedule, budget, and organization of NIF are released to the public as they are being identified during periodic program reviews. Any necessary adjustments are being addressed and resolved within DOE so that NIF can be completed in as timely and cost effective a manner as possible. DOE does not agree that it has lied to the public or acted in an irresponsible manner. See also General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 3-44

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 3-45

Comment noted.

Response 3-46

Your opposition to the NIF is noted.

Response 3-47

Comment noted.

Response 3-48

Comment noted.

Response 3-49

Comment noted.

Response 3-50

Comment noted. See General Issue 2 in Section 2 of this volume (Volume II of the SEIS).

Response 3-51

The SEIS addresses cleanup of buried objects discovered in the NIF construction area and residual contamination discovered in the ETC. These contaminants did not include plutonium. Post-cleanup analysis confirmed that the contaminants were cleaned up to levels appropriate for protection of human health (see Section 4 of Volume I).

Response 3-52

Comment noted.

Response 3-53

Comment noted. See General Issue 10 in Section 2 of this volume (Volume II of the SEIS).

The issue of operational waste treatment is not included in the scope of this SEIS (see General Issue 4). Volume III, Appendix I of the SSM PEIS, called the NIF Project-Specific Analysis, identified wastes generated by equipment changeout and cleaning (see Tables I-4.1.2.8.1-2 and 3 of the NIF Project-Specific Analysis). This document also identified how these wastes would be disposed of. The SEIS does not discuss this matter further. The SSM PEIS concluded that the risks associated with waste management were low in terms of impacts to the human environment.

The ultimate design and operation of NIF have remained essentially unchanged since the preparation of the SSM PEIS, although the initial level of operations will be lower in some respects. DOE believes that the analysis in that document accurately reflects the environmental impacts of constructing and operating NIF. Therefore DOE has determined that there were no new information or changed circumstances related to NIF operations, other than those contained in the SEIS, which would require further reevaluation of NIF operations as contained in the SSM PEIS.

Response 3-54

Comment noted.

Response 3-55

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 3-56

See General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

Response 3-57

See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 3-58

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).
See General Issue 10 in Section 2 of this volume (Volume II of the SEIS).

Response 3-59

Your comment on the scope of the SEIS is noted. See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 3-60

Comment noted.

Response 3-61

The NIF target chamber would receive energy in the form of light to initiate the fusion reaction. The energy would be contained within the chamber in order for temperatures and pressures necessary for fusion reactions to take place. The energy of fusion would be contained within the chamber.

Response 3-62

Comment noted.

Response 3-63

Comment noted.

Response 3-64

Comment noted.

Response 3-65

The NEPA requirements under which this SEIS were written have the purpose of providing a mechanism for making decisions (i.e., the Record of Decision) that integrate concerns of potential impacts to the environment and human health. See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 3-66

Comment noted.

Response 3-67

See General Issue 2 in Section 2 of this volume (Volume II of the SEIS). For the legal background of this SEIS, the commenter is referred to the text of the Joint Stipulation and Order and the Notice of Intent, also summarized in Section 1 of Volume I of this SEIS.

Response 3-68

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 3-69

Your preference for alternative use of the NIF facility is noted.

Response 3-70

Comment noted. See General Issue 8 in Section 2 of this volume (Volume II of the SEIS) regarding the purpose and need for NIF.

Response 3-71

DOE's response to the U.S. Environmental Protection Agency's (EPA's) letter of comment on the scope of the SEIS is described in Section 1.4 of Volume I of the SEIS. There, DOE discussed why certain issues raised by the EPA were inappropriate for this SEIS.

Response 3-72

See General Issue 2 in Section 2 of this volume (Volume II of the SEIS).

Response 3-73

Comment noted.

Response 3-74

Comment noted.

Response 3-75

Comment noted.

Response 3-76

See General Issue 10 in Section 2 of this volume (Volume II of the SEIS).

Response 3-77

DOE has evaluated the environmental impacts of the disposal of nuclear fuel in a recent Draft Environmental Impact Statement (EIS) entitled *Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada* (DOE/EIS-0250D). Section 4.1.13 of that Draft EIS

addresses environmental justice. This EIS is available on the DOE web site at the following URL: <http://tis.eh.doe.gov/nepa/docs/docs.htm>

Response 3-78

Comment noted.

Response 3-79

In August 1998, samples of soil at the City of Livermore's Big Trees Park showed plutonium concentrations below the EPA's level of concern for residential soil. The 1998 sampling of Big Trees Park had two purposes. The first was to determine if plutonium is present below the surface at a concentration that posed an unacceptable risk to the public. The second was to determine the origin of the plutonium. The origin of this plutonium contamination is believed to be sewage sludge. Historically LLNL has released plutonium at levels below regulatory limits to the sanitary sewer with the single largest known discharge in 1967. The LLNL effluent goes to the City of Livermore sewage plant, which treats and processes the sewage. Sludge is produced as a result of treatment by the city. The sludge was available to the public for use as a soil supplement through the 1970s. Historic and current testing at the sewage plant continues to show plutonium levels to be below regulatory limits. These tests are confirmed by regulatory agency oversight, and the results are available to the public through LLNL environmental web sites and publications.

Response 3-80

Comment noted.

Response 3-81

Comment noted.

Response 3-82

Comment noted.

Response 3-83

Comment noted.

Response 3-84

Comment noted.

Response 3-85

Comment noted.

Response 3-86

Comment noted.

Response 3-87

See General Issue 2 in Section 2 of this volume (Volume II of the SEIS).

Response 3-88

Comment noted.

Response 3-89

Comment noted.

Response 3-90

Comment noted. DOE has implemented polygraph testing of employees in sensitive positions to protect the integrity of information and data of a sensitive nature.

Response 3-91

See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 3-92

Comment noted.

Response 4-1

The transcripts and the response to comments are part of this volume (Volume II of the SEIS). When DOE approves this document for public release, it will be mailed to commenters, placed in the DOE reading room at Livermore, California, and available on the DOE NEPA web site at the following URL: <http://tis.eh.doe.gov/nepa/docs/docs.htm>

Response 4-2

See the response of Mr. Finn following the comment.

Response 4-3

See General Issues 8 and 9 in Section 2 of this volume (Volume II of the SEIS).

Response 4-4

See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 4-5

See General Issues 4 and 9 in Section 2 of this volume (Volume II of the SEIS).

Response 4-6

See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 4-7

The analyses in the SEIS show that there is low risk to human health or the environment from the newly discovered or potential buried objects or materials in the stipulated areas, including the NIF construction site. The SSM PEIS, Volume III, Appendix I (the NIF Project-Specific Analysis) concludes that there is low risk to human health from the operation of the NIF. See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 4-8

See General Issue 2 in Section 2 of this volume (Volume II of the SEIS).

Response 4-9

As described in Section 1.1 of the SEIS, PCB contamination was immediately removed after discovery of the capacitors.

Response 4-10

Comment noted.

Response 4-11

The SEIS evaluated the potential risk from removal of the PCB-containing capacitors and related remediation activities and concluded that risks to the public and workers were low.

Response 4-12

Your preference for continuing with NIF is noted.

Response 4-13

Comment noted.

Response 4-14

Comment noted.

Response 4-15

Your preference for continuing with NIF is noted.

Response 4-16

Comment noted.

Response 4-17

Your preferences for using funds for other purposes and for creating jobs implementing other energy technologies is noted. See General Issue 8 in Section 2 of this volume (Volume II of the SEIS) for further discussion of the purpose and need for NIF.

Response 4-18

See General Issue 8 in Section 2 of this volume (Volume II of the SEIS).

Response 4-19

Your preference for the discontinuing to build the NIF is noted. See General Issue 7 in Section 2 of this volume (Volume II of the SEIS) for revisions to alternatives.

Response 4-20

See General Issue 5 in Section 2 of this volume (Volume II of the SEIS) regarding reduced energy operations. It is fully expected that NIF will eventually reach full-scale operations. Its potential contribution to the development of fusion energy has not changed.

Response 4-21

The wastes generated during NIF operations are discussed in the SSM PEIS in Sections I.4.1.1.8 and I.4.2.1.8, which showed that the quantities and types of wastes potentially generated by NIF can be adequately disposed of as permitted by applicable regulations. The discovery of the PCB-containing capacitors and other existing site contamination does not change that analysis. These objects and wastes have already been disposed of in an environmentally acceptable manner.

Responses 4-22 and 4-23

The issue of operational waste treatment is not included in the scope of this SEIS (see General Issue 4). Volume III, Appendix I of the SSM PEIS, called the NIF Project-Specific Analysis, identified wastes generated by equipment changeout and cleaning (see Tables I-4.1.2.8.1-2 and 3 of the NIF Project-Specific Analysis). This document also identified how these wastes would be disposed of. The SEIS does not discuss this matter further. The SSM PEIS concluded that the risks associated with waste management were low in terms of impacts to the human environment.

The ultimate design and operation of NIF have remained essentially unchanged since the preparation of the SSM PEIS, although the initial level of operations will be lower in some respects. DOE believes that the analysis in that document accurately reflects the environmental impacts of constructing and operating NIF. Therefore DOE has determined that there were no new information or changed circumstances related to NIF operations, other than those contained in the SEIS, which would require further reevaluation of NIF operations as contained in the SSM PEIS.

Response 4-24

DOE has addressed the scope of issues identified in the JSO, including preparing a SEIS. This SEIS has been prepared to comply with the provisions of the National Environmental Policy Act and its implementing regulations, as they apply to SEISs.

Response 4-25

See General Issue 5 in Section 2 of this volume (Volume II of the SEIS). At this time, DOE is not proposing any significant changes to the NIF that were not analyzed previously in the SSM PEIS.

Response 4-26

See General Issue 8 in Section 2 of this volume (Volume II of the SEIS), which states that the purpose and need for NIF (science-based stockpile stewardship) has not changed from the description provided in the SSM PEIS. General Issue 8 also indicates that NIF would have scientific value beyond its role in stockpile stewardship. The experiments conducted at NIF would explore the physics of inertial confinement fusion reactions. Results could be used by physicists working to develop civilian fusion energy sources. Some scientists believe that inertial confinement fusion, which NIF experiments address, has potential for civilian applications including power, but much more information on basic sciences is needed. Experiments at NIF, up to and including actual fusion ignition, would provide such information.

Response 4-27

Although the experiments conducted at NIF would further understanding of the physics of fusion, the NIF facility is not designed or operated to be a source of fusion energy. Inertial

confinement fusion (the type of fusion that would occur in NIF) as a source of energy is too speculative an idea at this time to be appropriate for a programmatic environmental review. Should the mission of NIF change in the future, additional NEPA analysis would be conducted.

Response 4-28

See General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

Response 4-29

DOE anticipates that the NIF will be used for a variety of experiments, some at levels where ignition is expected. Both subignition and ignition experiments are part of science-based stockpile stewardship. DOE expects that during its lifetime, NIF will reach conditions where ignition would occur. The purpose and need for NIF and the analyses of the impacts of operations of NIF in the SSM EIS were based on achieving ignition. The experiments at NIF will provide a better understanding of the physics of inertial confinement fusion. It is expected that early experiments at low power or with fewer beam lines would be followed by conditions approaching or achieving ignition. The purpose and need for NIF as stated in the SSM PEIS are still applicable. See General Issue 8 in Section 2 of this volume (Volume II of the SEIS).

Response 4-30

Comment noted.

Response 4-31

Comment noted.

Response 4-32

Comment noted.

Response 4-33

See General Issue 8 in Section 2 of this volume (Volume II of the SEIS).

Response 4-34

See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 4-35

See General Issue 8 in Section 2 of this volume (Volume II of the SEIS).

Response 4-36

DOE is committed to operating its facilities, including LLNL, in an environmentally safe and protective manner.

Response 4-37

In August 1998, samples of soil at the City of Livermore's Big Trees Park showed plutonium concentrations below the EPA's level of concern for residential soil. The 1998 sampling of Big Trees Park had two purposes. The first was to determine if plutonium is present below the surface at a concentration that posed an unacceptable risk to the public. The second was to determine the origin of the plutonium. The origin of this plutonium contamination is believed to be sewage sludge. Historically, LLNL has released plutonium at levels below regulatory limits to the sanitary sewer, with the single largest known discharge in 1967. The LLNL effluent goes to the city sewage plant, which treats and processes the sewage. Sludge is produced as a result of treatment by the city. The sludge was available to the public for use as a soil amendment through the 1970s. Historic and current testing at the sewage plant continues to show plutonium levels to be below regulatory limits. These tests are confirmed by regulatory agency oversight, and the results are available to the public through LLNL environmental web sites and publications.

Response 4-38

The issues raised by the commenter are outside the scope of the NIF SEIS.

Response 4-39

Comment noted.

Response 4-40

Comment noted. Also, See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 4-41

See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 5-1

The analysis of employment for the alternative of ceasing NIF construction has been revised to clarify the uncertainties with regard to employment. See Section 4.3 of the SEIS. See General Issue 7 in Section 2 of this volume (Volume II of the SEIS) for a discussion of revisions and additions to alternatives.

Response 5-2

The statement referred to regarding potential injuries to workers for the NIF alternatives is a general estimate based on industrywide accident rates and general assumptions about the amount of effort required to complete the alternatives. Worker injuries were estimated on the basis of national statistics of injuries and deaths for construction workers. Demolition of structures already completed at the NIF site and filling in the excavation would most likely result in additional hours worked beyond that required to complete the NIF buildings. (NIF buildings are more than 94% complete.) The conclusion that more workers would be injured in demolition activities than if the NIF facility were completed is a reasonable statement of potential impact. This conclusion is based on the rate of worker injuries known for the construction trades. The source of these rates is cited in the SEIS.

Response 5-3

All references to Region 9 preliminary remediation goals (PRGs) with respect to the 18-parts-per-million (ppm) cleanup level for Aroclor 1254 have been corrected, including those on pages vi, 1-3, 2-2, 2-4, A-8, and footnote d of Table 3.1. The text has been revised so as not to imply that 18 ppm is the cancer PRG (that PRG is 1 ppm) for Aroclor 1254 in industrial soils. The Action Memorandum for the removal (see also next response) has been described and used for the basis of revisions to this section of text.

Response 5-4

DOE has prepared an Action Memorandum documenting removal of PCB-containing soils in the East Traffic Circle and providing the rationale behind choosing a cleanup level of 18 ppm (Joma, H., 2000, *Time Critical Removal Action at the East Traffic Circle*, Action Memorandum from H. Joma, DOE Livermore Environmental Programs Division to J. Davis, DOE Assistant Manager for Environmental and National Security, March 6). The Action Memorandum was sent to EPA Region 9 on March 10, 2000. This document incorporated regulatory agency comments and was issued to the public. The purpose of this document is to obtain closure for this action. The document explains the history of the cleanup level used in the ETC and the reasons this level of 18 ppm is considered protective. The Action Memorandum has been cited in the SEIS where appropriate.

Response 5-5

The SEIS has been revised to state that the analytical procedures used in both the NIF Construction Area and East Traffic Circle Area removal actions were performed in accordance with the approved Quality Assurance Project Plan (QAPP) and DOE's standard operating procedures (SOPs). The QAPP and SOPs are now included in the list of references for the document. These references are:

Dibley, V., 1999, *Quality Assurance Project Plan, Livermore Site and Site 300 Environmental Restoration Projects*, Lawrence Livermore National Laboratory, Livermore, Calif. (UCRL-AR-103160, Rev. 2).

Dibley, V., and R. Depue, 1999, *LLNL Livermore Site and Site 300 Environmental Restoration Project Standard Operating Procedures (SOPs)*, Lawrence Livermore National Laboratory, Livermore, Calif. (UCRL-MA-109115, Rev. 6).

Response 5-6

The term “remediation process” on pages 1-6 and 4-9 of Volume I of the SEIS, as noted, has been changed to “removal process,” and the term “remediation actions” on page 4-9 has been changed to “removal actions.”

Response 5-7

The term “new information” has been changed to “recent soil and groundwater data, including data collected in support of the capacitor landfill removal and Phase I and Phase II investigations, concluded....”

Response 5-8

The word “significant” has been added in the two places indicated in the comment on page 4-8 of Volume I of the SEIS. The text has been revised to state in both instances that investigations indicate that the capacitor landfill and the ETC area are the only “significant” sources of previously unknown or undiscovered buried hazardous, toxic, or radioactive waste.

Response 5-9

In Table 3.1 of Volume I of the SEIS, the term “Freon 11” has been changed to “trichlorofluoromethane (Freon 11),” and the PRG for this compound in industrial soil of 2,000 mg/kg has been added to the second column.

Response 6-1

Mr. Piros’s letter is Document 8. See Responses 8-1 to 8-8.

Response 7-1

Your opposition to NIF, statement of better use of public funding, and opposition to the nuclear industry are noted. See General Issue 2 in Section 2 of this volume (Volume II of the SEIS).

Response 8-1

The use of the term “brownfield” has been deleted from the description of a demolished NIF facility site in Volume I of the SEIS.

Response 8-2

PRGs listed in Table 3.1 of Volume I of the SEIS and elsewhere in the document have been updated to 1999 values. PRG values of 2,000 mg/kg for Freon 11 (trichlorofluoromethane) and 45,000 pCi/g for tritium in industrial/commercial soil have been added to Table 3.1 in Volume I of the SEIS.

Response 8-3

The bulleted list of contaminants on page 3-6 has been revised to include PCBs. The last sentence on page 3-6 has been changed to indicate that Table 3.1 of Volume I of the SEIS lists six contaminants rather than seven.

Response 8-4

Table 3.2 of Volume I of the SEIS and all affected figures have been revised to indicate that Freon 11 (trichlorofluoromethane) has a California maximum contaminant level of 150 ppb.

Response 8-5

On page 3-9 of Volume I of the SEIS, “parts per millions” has been changed to “parts per million.”

Response 8-6

Data on groundwater concentrations for all contaminants in all areas for both time frames were not available for all the figures. In Figure 3-7 in Volume I of this SEIS, data were not available for 1997 and “current,” as indicated by the letters “NA.” In Figure 3.15 in Volume I of this SEIS, current data were available for tritium but not for other contaminants. This explanation has been added to the SEIS.

Response 8-7

The disposal site for the PCB soils removed from the East Traffic Circle Area after the 1998 discovery has been revised to the Enviro-Safe, Inc., facility in Idaho, instead of the Clive, Utah, incinerator.

Response 8-8

The text in the first paragraph on page 4-19 has been revised to indicate that removal actions involving PCB-contaminated soils in the NIF construction area and East Traffic Circle area have been completed and that any particulate-borne PCB releases would have been short term.

Response 8-9

Comment noted.

Response 9-1

Your opposition to the NIF on the basis of risk to human health is noted. The SEIS evaluates risks from exposure to radioactive and hazardous materials during cleanup of the newly discovered contamination in the NIF construction area. The SEIS concludes that risks would be very low. See Section 4 of Volume I of the SEIS.

Response 9-2

Your opposition to NIF on the basis of threats from nuclear weapons is noted. See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 9-3

Your opposition to the NIF project and preference for not continuing with NIF are noted.

Response 10-1

This document is a duplicate; see responses to Document 9.

Response 11-1

Your comment regarding trust of scientists is noted.

Response 11-2

See General Issue 8 in Section 2 of this volume (Volume II of the SEIS).

Response 11-3

See General Issue 9 in Section 2 of this volume (Volume II of the SEIS).

Response 11-4

Your comments regarding the cost of NIF and fate of surplus equipment are noted.

Response 11-5

Your opposition to the NIF is noted.

Response 11-6

Your comments regarding the moral implications of NIF are noted.

Response 12-1

See Response 3-26.

Response 12-2

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 13-1

This document contains no comments.

Response 14-1

See General Issues 4 and 10 in Section 2 of this volume (Volume II of the SEIS).

Response 14-2

The operations of NIF described in the SSM PEIS included maintenance of equipment and cleaning in areas including the area of the target chamber. Replacement of parts as needed for the various experimental campaigns and as a result of wear is expected. The NIF facility has been designed so that components of the laser and target experimental systems can be changed out as needed. This activity would be routine and would not require workers to be exposed to levels of radiation, activation products, or hazardous materials at levels that would present an unacceptable health risk. Exposure of workers would be limited by DOE and Occupational Safety and Health Administration (OSHA) regulations and guidelines. When maintenance activities would be performed near the target chamber, the NIF would be shut down, and neutron flux would not occur. Wastes from equipment changeout and cleaning were included in Tables I-4.1.2.8.1-2 and 3 of the SSM PEIS, and these estimates envelope variations in operations such as changes in maintenance schedules.

Response 14-3

See General Issue 5 in Section 2 of this volume (Volume II of the SEIS).

Response 14-4

See General Issue 8 in Section 2 of this volume (Volume II of the SEIS).

Response 14-5

See General Issue 4 in Section 2 of this volume (Volume II of the SEIS).

Response 14-6

The SEIS was revised to address an alternative of halting construction of the NIF and abandoning the site. This alternative was considered unreasonable and not analyzed in detail, as described in General Issue 7 of this volume (Volume II of the SEIS).

Response 15-1

The issue of operational waste treatment is not included in the scope of this SEIS-Volume III, Appendix I, of the SSM PEIS, called the NIF Project-Specific Analysis, identified wastes generated by equipment changeout and cleaning (see Tables I-4.1.2.8.1-2 and 3 of the NIF Project-Specific Analysis). This document also identified how these wastes would be disposed of. The SEIS does not discuss this issue further. The SSM PEIS concluded that the risks associated with waste management were low in terms of impacts to the human environment.

See General Issue 4 in Chapter 2 of this volume (Volume II of the SEIS).

Response 16-1

Comment noted.